

SEQUENCE LISTING

<110> TAKARA BIO INC.

<120> Process for the preparation of lymphocyte having cytotoxic activity

<130> 04-058-PCTJP

<150> JP 2003-298208

<151> 2003-08-22

<150> JP 2004-699

<151> 2004-01-05

<150> JP 2004-115648

<151> 2004-04-09

<150> JP 2004-222441

<151> 2004-07-29

<160> 29

<210> 1

<211> 87

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named III-8

<400> 1

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Asp | Leu | Arg | Phe | Thr | Asn | Ile | Gly | Pro | Asp | Thr | Met | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Val | Thr | Trp | Ala | Pro | Pro | Pro | Ser | Ile | Asp | Leu | Thr | Asn | Phe | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Arg | Tyr | Ser | Pro | Val | Lys | Asn | Glu | Glu | Asp | Val | Ala | Glu | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Ser | Ile | Ser | Pro | Ser | Asp | Asn | Ala | Val | Val | Leu | Thr | Asn | Leu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Val | Ser | Ser | Val | Tyr | Glu | Gln |
| | | | | 65 | | | | | 70 | | | | | 75 |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | | | |
| | | | | 80 | | | | | 85 | | | | | |

<210> 2

<211> 90

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named III-9

<400> 2

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Leu | Asp | Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Asn | Ser | Phe | Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Gly | Tyr | Arg | Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Arg | Glu | Asp | Arg | Val | Pro | His | Ser | Arg | Asn | Ser | Ile | Thr | Leu | Thr |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Asn | Leu | Thr | Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Ile | Val | Ala | Leu |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Asn | Gly | Arg | Glu | Glu | Ser | Pro | Leu | Leu | Ile | Gly | Gln | Gln | Ser | Thr |
| | | | | 80 | | | | | 85 | | | | | 90 |

<210> 3

<211> 94

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named III-10

<400> 3

Val Ser Asp Val Pro Arg Asp Leu Glu Val Val Ala Ala Thr Pro

| | | | |
|---|----|----|----|
| 1 | 5 | 10 | 15 |
| Thr Ser Leu Leu Ile Ser Trp Asp Ala Pro Ala Val Thr Val Arg | | | |
| | 20 | 25 | 30 |
| Tyr Tyr Arg Ile Thr Tyr Gly Glu Thr Gly Gly Asn Ser Pro Val | | | |
| | 35 | 40 | 45 |
| Gln Glu Phe Thr Val Pro Gly Ser Lys Ser Thr Ala Thr Ile Ser | | | |
| | 50 | 55 | 60 |
| Gly Leu Lys Pro Gly Val Asp Tyr Thr Ile Thr Val Tyr Ala Val | | | |
| | 65 | 70 | 75 |
| Thr Gly Arg Gly Asp Ser Pro Ala Ser Ser Lys Pro Ile Ser Ile | | | |
| | 80 | 85 | 90 |
| Asn Tyr Arg Thr | | | |

<210> 4

<211> 84

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named III-11

<400> 4

| |
|--|
| Gln Met Gln Val Thr Asp Val Gln Asp Asn Ser Ile Ser Val Lys |
| 1 5 10 15 |
| Trp Leu Pro Ser Ser Ser Pro Val Thr Gly Tyr Arg Val Thr Thr |

| | | | |
|---|----|----|----|
| | 20 | 25 | 30 |
| Thr Pro Lys Asn Gly Pro Gly Pro Thr Lys Thr Lys Thr Ala Gly | | | |
| | 35 | 40 | 45 |
| Pro Asp Gln Thr Glu Met Thr Ile Glu Gly Leu Gln Pro Thr Val | | | |
| | 50 | 55 | 60 |
| Glu Tyr Val Val Ser Val Tyr Ala Gln Asn Pro Ser Gly Glu Ser | | | |
| | 65 | 70 | 75 |
| Gln Pro Leu Val Gln Thr Ala Val Thr | | | |
| | 80 | | |

<210> 5

<211> 92

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named III-12

<400> 5

| | | | |
|---|----|----|----|
| Ala Ile Pro Ala Pro Thr Asp Leu Lys Phe Thr Gln Val Thr Pro | | | |
| 1 | 5 | 10 | 15 |
| Thr Ser Leu Ser Ala Gln Trp Thr Pro Pro Asn Val Gln Leu Thr | | | |
| | 20 | 25 | 30 |
| Gly Tyr Arg Val Arg Val Thr Pro Lys Glu Lys Thr Gly Pro Met | | | |
| | 35 | 40 | 45 |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Glu | Ile | Asn | Leu | Ala | Pro | Asp | Ser | Ser | Ser | Val | Val | Val | Ser |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Gly | Leu | Met | Val | Ala | Thr | Lys | Tyr | Glu | Val | Ser | Val | Tyr | Ala | Leu |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Lys | Asp | Thr | Leu | Thr | Ser | Arg | Pro | Ala | Gln | Gly | Val | Val | Thr | Thr |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Leu | Glu | | | | | | | | | | | | | |

<210> 6

<211> 89

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named III-13

<400> 6

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Val | Ser | Pro | Pro | Arg | Arg | Ala | Arg | Val | Thr | Asp | Ala | Thr | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Thr | Thr | Ile | Thr | Ile | Ser | Trp | Arg | Thr | Lys | Thr | Glu | Thr | Ile | Thr |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Gly | Phe | Gln | Val | Asp | Ala | Val | Pro | Ala | Asn | Gly | Gln | Thr | Pro | Ile |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Gln | Arg | Thr | Ile | Lys | Pro | Asp | Val | Arg | Ser | Tyr | Thr | Ile | Thr | Gly |
| | | | | 50 | | | | | 55 | | | | | 60 |

Leu Gln Pro Gly Thr Asp Tyr Lys Ile Tyr Leu Tyr Thr Leu Asn

65

70

75

Asp Asn Ala Arg Ser Ser Pro Val Val Ile Asp Ala Ser Thr

80

85

<210> 7

<211> 90

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named III-14

<400> 7

Ala Ile Asp Ala Pro Ser Asn Leu Arg Phe Leu Ala Thr Thr Pro

1

5

10

15

Asn Ser Leu Leu Val Ser Trp Gln Pro Pro Arg Ala Arg Ile Thr

20

25

30

Gly Tyr Ile Ile Lys Tyr Glu Lys Pro Gly Ser Pro Pro Arg Glu

35

40

45

Val Val Pro Arg Pro Arg Pro Gly Val Thr Glu Ala Thr Ile Thr

50

55

60

Gly Leu Glu Pro Gly Thr Glu Tyr Thr Ile Tyr Val Ile Ala Leu

65

70

75

Lys Asn Asn Gln Lys Ser Glu Pro Leu Ile Gly Arg Lys Lys Thr

80

85

90

<210> 8

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named CS-1

<400> 8

Asp Glu Leu Pro Gln Leu Val Thr Leu Pro His Pro Asn Leu His

1

5

10

15

Gly Pro Glu Ile Leu Asp Val Pro Ser Thr

20

25

<210> 9

<211> 274

<212> PRT

<213> Human

<220>

<223> fibronectin fragment named C-274

<400> 9

| | | | |
|---|-----|-----|-----|
| Pro Thr Asp Leu Arg Phe Thr Asn Ile Gly Pro Asp Thr Met Arg | | | |
| 1 | 5 | 10 | 15 |
| Val Thr Trp Ala Pro Pro Pro Ser Ile Asp Leu Thr Asn Phe Leu | | | |
| | 20 | 25 | 30 |
| Val Arg Tyr Ser Pro Val Lys Asn Glu Glu Asp Val Ala Glu Leu | | | |
| | 35 | 40 | 45 |
| Ser Ile Ser Pro Ser Asp Asn Ala Val Val Leu Thr Asn Leu Leu | | | |
| | 50 | 55 | 60 |
| Pro Gly Thr Glu Tyr Val Val Ser Val Ser Ser Val Tyr Glu Gln | | | |
| | 65 | 70 | 75 |
| His Glu Ser Thr Pro Leu Arg Gly Arg Gln Lys Thr Gly Leu Asp | | | |
| | 80 | 85 | 90 |
| Ser Pro Thr Gly Ile Asp Phe Ser Asp Ile Thr Ala Asn Ser Phe | | | |
| | 95 | 100 | 105 |
| Thr Val His Trp Ile Ala Pro Arg Ala Thr Ile Thr Gly Tyr Arg | | | |
| | 110 | 115 | 120 |
| Ile Arg His His Pro Glu His Phe Ser Gly Arg Pro Arg Glu Asp | | | |
| | 125 | 130 | 135 |
| Arg Val Pro His Ser Arg Asn Ser Ile Thr Leu Thr Asn Leu Thr | | | |
| | 140 | 145 | 150 |
| Pro Gly Thr Glu Tyr Val Val Ser Ile Val Ala Leu Asn Gly Arg | | | |
| | 155 | 160 | 165 |
| Glu Glu Ser Pro Leu Leu Ile Gly Gln Gln Ser Thr Val Ser Asp | | | |
| | 170 | 175 | 180 |
| Val Pro Arg Asp Leu Glu Val Val Ala Ala Thr Pro Thr Ser Leu | | | |

| | | |
|---|-----|-----|
| 20 | 25 | 30 |
| Gly Tyr Arg Val Arg Val Thr Pro Lys Glu Lys Thr Gly Pro Met | | |
| 35 | 40 | 45 |
| Lys Glu Ile Asn Leu Ala Pro Asp Ser Ser Ser Val Val Val Ser | | |
| 50 | 55 | 60 |
| Gly Leu Met Val Ala Thr Lys Tyr Glu Val Ser Val Tyr Ala Leu | | |
| 65 | 70 | 75 |
| Lys Asp Thr Leu Thr Ser Arg Pro Ala Gln Gly Val Val Thr Thr | | |
| 80 | 85 | 90 |
| Leu Glu Asn Val Ser Pro Pro Arg Arg Ala Arg Val Thr Asp Ala | | |
| 95 | 100 | 105 |
| Thr Glu Thr Thr Ile Thr Ile Ser Trp Arg Thr Lys Thr Glu Thr | | |
| 110 | 115 | 120 |
| Ile Thr Gly Phe Gln Val Asp Ala Val Pro Ala Asn Gly Gln Thr | | |
| 125 | 130 | 135 |
| Pro Ile Gln Arg Thr Ile Lys Pro Asp Val Arg Ser Tyr Thr Ile | | |
| 140 | 145 | 150 |
| Thr Gly Leu Gln Pro Gly Thr Asp Tyr Lys Ile Tyr Leu Tyr Thr | | |
| 155 | 160 | 165 |
| Leu Asn Asp Asn Ala Arg Ser Ser Pro Val Val Ile Asp Ala Ser | | |
| 170 | 175 | 180 |
| Thr Ala Ile Asp Ala Pro Ser Asn Leu Arg Phe Leu Ala Thr Thr | | |
| 185 | 190 | 195 |
| Pro Asn Ser Leu Leu Val Ser Trp Gln Pro Pro Arg Ala Arg Ile | | |
| 200 | 205 | 210 |
| Thr Gly Tyr Ile Ile Lys Tyr Glu Lys Pro Gly Ser Pro Pro Arg | | |

| | | |
|---|-----|-----|
| 215 | 220 | 225 |
| Glu Val Val Pro Arg Pro Arg Pro Gly Val Thr Glu Ala Thr Ile | | |
| 230 | 235 | 240 |
| Thr Gly Leu Glu Pro Gly Thr Glu Tyr Thr Ile Tyr Val Ile Ala | | |
| 245 | 250 | 255 |
| Leu Lys Asn Asn Gln Lys Ser Glu Pro Leu Ile Gly Arg Lys Lys | | |
| 260 | 265 | 270 |
| Thr | | |

<210> 11

<211> 296

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named H-296

<400> 11

| | | |
|---|----|----|
| Ala Ile Pro Ala Pro Thr Asp Leu Lys Phe Thr Gln Val Thr Pro | | |
| 1 | 5 | 10 |
| Thr Ser Leu Ser Ala Gln Trp Thr Pro Pro Asn Val Gln Leu Thr | | |
| 20 | 25 | 30 |
| Gly Tyr Arg Val Arg Val Thr Pro Lys Glu Lys Thr Gly Pro Met | | |
| 35 | 40 | 45 |
| Lys Glu Ile Asn Leu Ala Pro Asp Ser Ser Ser Val Val Val Ser | | |

| | | |
|---|-----|-----|
| 50 | 55 | 60 |
| Gly Leu Met Val Ala Thr Lys Tyr Glu Val Ser Val Tyr Ala Leu | | |
| 65 | 70 | 75 |
| Lys Asp Thr Leu Thr Ser Arg Pro Ala Gln Gly Val Val Thr Thr | | |
| 80 | 85 | 90 |
| Leu Glu Asn Val Ser Pro Pro Arg Arg Ala Arg Val Thr Asp Ala | | |
| 95 | 100 | 105 |
| Thr Glu Thr Thr Ile Thr Ile Ser Trp Arg Thr Lys Thr Glu Thr | | |
| 110 | 115 | 120 |
| Ile Thr Gly Phe Gln Val Asp Ala Val Pro Ala Asn Gly Gln Thr | | |
| 125 | 130 | 135 |
| Pro Ile Gln Arg Thr Ile Lys Pro Asp Val Arg Ser Tyr Thr Ile | | |
| 140 | 145 | 150 |
| Thr Gly Leu Gln Pro Gly Thr Asp Tyr Lys Ile Tyr Leu Tyr Thr | | |
| 155 | 160 | 165 |
| Leu Asn Asp Asn Ala Arg Ser Ser Pro Val Val Ile Asp Ala Ser | | |
| 170 | 175 | 180 |
| Thr Ala Ile Asp Ala Pro Ser Asn Leu Arg Phe Leu Ala Thr Thr | | |
| 185 | 190 | 195 |
| Pro Asn Ser Leu Leu Val Ser Trp Gln Pro Pro Arg Ala Arg Ile | | |
| 200 | 205 | 210 |
| Thr Gly Tyr Ile Ile Lys Tyr Glu Lys Pro Gly Ser Pro Pro Arg | | |
| 215 | 220 | 225 |
| Glu Val Val Pro Arg Pro Arg Pro Gly Val Thr Glu Ala Thr Ile | | |
| 230 | 235 | 240 |
| Thr Gly Leu Glu Pro Gly Thr Glu Tyr Thr Ile Tyr Val Ile Ala | | |

| | | |
|---|-----|-----|
| 245 | 250 | 255 |
| Leu Lys Asn Asn Gln Lys Ser Glu Pro Leu Ile Gly Arg Lys Lys | | |
| 260 | 265 | 270 |
| Thr Asp Glu Leu Pro Gln Leu Val Thr Leu Pro His Pro Asn Leu | | |
| 275 | 280 | 285 |
| His Gly Pro Glu Ile Leu Asp Val Pro Ser Thr | | |
| 290 | 295 | |

<210> 12

<211> 549

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CH-271

<400> 12

| | | |
|---|----|----|
| Pro Thr Asp Leu Arg Phe Thr Asn Ile Gly Pro Asp Thr Met Arg | | |
| 1 | 5 | 10 |
| Val Thr Trp Ala Pro Pro Pro Ser Ile Asp Leu Thr Asn Phe Leu | | |
| 20 | 25 | 30 |
| Val Arg Tyr Ser Pro Val Lys Asn Glu Glu Asp Val Ala Glu Leu | | |
| 35 | 40 | 45 |
| Ser Ile Ser Pro Ser Asp Asn Ala Val Val Leu Thr Asn Leu Leu | | |
| 50 | 55 | 60 |

| | | | |
|---|-----|-----|-----|
| Pro Gly Thr Glu Tyr Val Val Ser Val Ser Ser Val Tyr Glu Gln | | | |
| | 65 | 70 | 75 |
| His Glu Ser Thr Pro Leu Arg Gly Arg Gln Lys Thr Gly Leu Asp | | | |
| | 80 | 85 | 90 |
| Ser Pro Thr Gly Ile Asp Phe Ser Asp Ile Thr Ala Asn Ser Phe | | | |
| | 95 | 100 | 105 |
| Thr Val His Trp Ile Ala Pro Arg Ala Thr Ile Thr Gly Tyr Arg | | | |
| | 110 | 115 | 120 |
| Ile Arg His His Pro Glu His Phe Ser Gly Arg Pro Arg Glu Asp | | | |
| | 125 | 130 | 135 |
| Arg Val Pro His Ser Arg Asn Ser Ile Thr Leu Thr Asn Leu Thr | | | |
| | 140 | 145 | 150 |
| Pro Gly Thr Glu Tyr Val Val Ser Ile Val Ala Leu Asn Gly Arg | | | |
| | 155 | 160 | 165 |
| Glu Glu Ser Pro Leu Leu Ile Gly Gln Gln Ser Thr Val Ser Asp | | | |
| | 170 | 175 | 180 |
| Val Pro Arg Asp Leu Glu Val Val Ala Ala Thr Pro Thr Ser Leu | | | |
| | 185 | 190 | 195 |
| Leu Ile Ser Trp Asp Ala Pro Ala Val Thr Val Arg Tyr Tyr Arg | | | |
| | 200 | 205 | 210 |
| Ile Thr Tyr Gly Glu Thr Gly Gly Asn Ser Pro Val Gln Glu Phe | | | |
| | 215 | 220 | 225 |
| Thr Val Pro Gly Ser Lys Ser Thr Ala Thr Ile Ser Gly Leu Lys | | | |
| | 230 | 235 | 240 |
| Pro Gly Val Asp Tyr Thr Ile Thr Val Tyr Ala Val Thr Gly Arg | | | |
| | 245 | 250 | 255 |

| | | | |
|---|-----|-----|-----|
| Gly Asp Ser Pro Ala Ser Ser Lys Pro Ile Ser Ile Asn Tyr Arg | | | |
| | 260 | 265 | 270 |
| Thr Glu Ile Asp Lys Pro Ser Met Ala Ile Pro Ala Pro Thr Asp | | | |
| | 275 | 280 | 285 |
| Leu Lys Phe Thr Gln Val Thr Pro Thr Ser Leu Ser Ala Gln Trp | | | |
| | 290 | 295 | 300 |
| Thr Pro Pro Asn Val Gln Leu Thr Gly Tyr Arg Val Arg Val Thr | | | |
| | 305 | 310 | 315 |
| Pro Lys Glu Lys Thr Gly Pro Met Lys Glu Ile Asn Leu Ala Pro | | | |
| | 320 | 325 | 330 |
| Asp Ser Ser Ser Val Val Val Ser Gly Leu Met Val Ala Thr Lys | | | |
| | 335 | 340 | 345 |
| Tyr Glu Val Ser Val Tyr Ala Leu Lys Asp Thr Leu Thr Ser Arg | | | |
| | 350 | 355 | 360 |
| Pro Ala Gln Gly Val Val Thr Thr Leu Glu Asn Val Ser Pro Pro | | | |
| | 365 | 370 | 375 |
| Arg Arg Ala Arg Val Thr Asp Ala Thr Glu Thr Thr Ile Thr Ile | | | |
| | 380 | 385 | 390 |
| Ser Trp Arg Thr Lys Thr Glu Thr Ile Thr Gly Phe Gln Val Asp | | | |
| | 395 | 400 | 405 |
| Ala Val Pro Ala Asn Gly Gln Thr Pro Ile Gln Arg Thr Ile Lys | | | |
| | 410 | 415 | 420 |
| Pro Asp Val Arg Ser Tyr Thr Ile Thr Gly Leu Gln Pro Gly Thr | | | |
| | 425 | 430 | 435 |
| Asp Tyr Lys Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser | | | |
| | 440 | 445 | 450 |

| | | | |
|---|-----|-----|-----|
| Ser Pro Val Val Ile Asp Ala Ser Thr Ala Ile Asp Ala Pro Ser | | | |
| | 455 | 460 | 465 |
| Asn Leu Arg Phe Leu Ala Thr Thr Pro Asn Ser Leu Leu Val Ser | | | |
| | 470 | 475 | 480 |
| Trp Gln Pro Pro Arg Ala Arg Ile Thr Gly Tyr Ile Ile Lys Tyr | | | |
| | 485 | 490 | 495 |
| Glu Lys Pro Gly Ser Pro Pro Arg Glu Val Val Pro Arg Pro Arg | | | |
| | 500 | 505 | 510 |
| Pro Gly Val Thr Glu Ala Thr Ile Thr Gly Leu Glu Pro Gly Thr | | | |
| | 515 | 520 | 525 |
| Glu Tyr Thr Ile Tyr Val Ile Ala Leu Lys Asn Asn Gln Lys Ser | | | |
| | 530 | 535 | 540 |
| Glu Pro Leu Ile Gly Arg Lys Lys Thr | | | |
| | 545 | | |

<210> 13

<211> 574

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CH-296

<400> 13

Pro Thr Asp Leu Arg Phe Thr Asn Ile Gly Pro Asp Thr Met Arg

| | | | |
|---|-----|-----|-----|
| 1 | 5 | 10 | 15 |
| Val Thr Trp Ala Pro Pro Pro Ser Ile Asp Leu Thr Asn Phe Leu | | | |
| | 20 | 25 | 30 |
| Val Arg Tyr Ser Pro Val Lys Asn Glu Glu Asp Val Ala Glu Leu | | | |
| | 35 | 40 | 45 |
| Ser Ile Ser Pro Ser Asp Asn Ala Val Val Leu Thr Asn Leu Leu | | | |
| | 50 | 55 | 60 |
| Pro Gly Thr Glu Tyr Val Val Ser Val Ser Ser Val Tyr Glu Gln | | | |
| | 65 | 70 | 75 |
| His Glu Ser Thr Pro Leu Arg Gly Arg Gln Lys Thr Gly Leu Asp | | | |
| | 80 | 85 | 90 |
| Ser Pro Thr Gly Ile Asp Phe Ser Asp Ile Thr Ala Asn Ser Phe | | | |
| | 95 | 100 | 105 |
| Thr Val His Trp Ile Ala Pro Arg Ala Thr Ile Thr Gly Tyr Arg | | | |
| | 110 | 115 | 120 |
| Ile Arg His His Pro Glu His Phe Ser Gly Arg Pro Arg Glu Asp | | | |
| | 125 | 130 | 135 |
| Arg Val Pro His Ser Arg Asn Ser Ile Thr Leu Thr Asn Leu Thr | | | |
| | 140 | 145 | 150 |
| Pro Gly Thr Glu Tyr Val Val Ser Ile Val Ala Leu Asn Gly Arg | | | |
| | 155 | 160 | 165 |
| Glu Glu Ser Pro Leu Leu Ile Gly Gln Gln Ser Thr Val Ser Asp | | | |
| | 170 | 175 | 180 |
| Val Pro Arg Asp Leu Glu Val Val Ala Ala Thr Pro Thr Ser Leu | | | |
| | 185 | 190 | 195 |
| Leu Ile Ser Trp Asp Ala Pro Ala Val Thr Val Arg Tyr Tyr Arg | | | |

| | | |
|---|-----|-----|
| 200 | 205 | 210 |
| Ile Thr Tyr Gly Glu Thr Gly Gly Asn Ser Pro Val Gln Glu Phe | | |
| 215 | 220 | 225 |
| Thr Val Pro Gly Ser Lys Ser Thr Ala Thr Ile Ser Gly Leu Lys | | |
| 230 | 235 | 240 |
| Pro Gly Val Asp Tyr Thr Ile Thr Val Tyr Ala Val Thr Gly Arg | | |
| 245 | 250 | 255 |
| Gly Asp Ser Pro Ala Ser Ser Lys Pro Ile Ser Ile Asn Tyr Arg | | |
| 260 | 265 | 270 |
| Thr Glu Ile Asp Lys Pro Ser Met Ala Ile Pro Ala Pro Thr Asp | | |
| 275 | 280 | 285 |
| Leu Lys Phe Thr Gln Val Thr Pro Thr Ser Leu Ser Ala Gln Trp | | |
| 290 | 295 | 300 |
| Thr Pro Pro Asn Val Gln Leu Thr Gly Tyr Arg Val Arg Val Thr | | |
| 305 | 310 | 315 |
| Pro Lys Glu Lys Thr Gly Pro Met Lys Glu Ile Asn Leu Ala Pro | | |
| 320 | 325 | 330 |
| Asp Ser Ser Ser Val Val Val Ser Gly Leu Met Val Ala Thr Lys | | |
| 335 | 340 | 345 |
| Tyr Glu Val Ser Val Tyr Ala Leu Lys Asp Thr Leu Thr Ser Arg | | |
| 350 | 355 | 360 |
| Pro Ala Gln Gly Val Val Thr Thr Leu Glu Asn Val Ser Pro Pro | | |
| 365 | 370 | 375 |
| Arg Arg Ala Arg Val Thr Asp Ala Thr Glu Thr Thr Ile Thr Ile | | |
| 380 | 385 | 390 |
| Ser Trp Arg Thr Lys Thr Glu Thr Ile Thr Gly Phe Gln Val Asp | | |

| | | |
|---|-----|-----|
| 395 | 400 | 405 |
| Ala Val Pro Ala Asn Gly Gln Thr Pro Ile Gln Arg Thr Ile Lys | | |
| 410 | 415 | 420 |
| Pro Asp Val Arg Ser Tyr Thr Ile Thr Gly Leu Gln Pro Gly Thr | | |
| 425 | 430 | 435 |
| Asp Tyr Lys Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser | | |
| 440 | 445 | 450 |
| Ser Pro Val Val Ile Asp Ala Ser Thr Ala Ile Asp Ala Pro Ser | | |
| 455 | 460 | 465 |
| Asn Leu Arg Phe Leu Ala Thr Thr Pro Asn Ser Leu Leu Val Ser | | |
| 470 | 475 | 480 |
| Trp Gln Pro Pro Arg Ala Arg Ile Thr Gly Tyr Ile Ile Lys Tyr | | |
| 485 | 490 | 495 |
| Glu Lys Pro Gly Ser Pro Pro Arg Glu Val Val Pro Arg Pro Arg | | |
| 500 | 505 | 510 |
| Pro Gly Val Thr Glu Ala Thr Ile Thr Gly Leu Glu Pro Gly Thr | | |
| 515 | 520 | 525 |
| Glu Tyr Thr Ile Tyr Val Ile Ala Leu Lys Asn Asn Gln Lys Ser | | |
| 530 | 535 | 540 |
| Glu Pro Leu Ile Gly Arg Lys Lys Thr Asp Glu Leu Pro Gln Leu | | |
| 545 | 550 | 555 |
| Val Thr Leu Pro His Pro Asn Leu His Gly Pro Glu Ile Leu Asp | | |
| 560 | 565 | 570 |
| Val Pro Ser Thr | | |

<210> 14

<211> 302

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named C-CS1

<400> 14

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Asp | Leu | Arg | Phe | Thr | Asn | Ile | Gly | Pro | Asp | Thr | Met | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Val | Thr | Trp | Ala | Pro | Pro | Pro | Ser | Ile | Asp | Leu | Thr | Asn | Phe | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Arg | Tyr | Ser | Pro | Val | Lys | Asn | Glu | Glu | Asp | Val | Ala | Glu | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Ser | Ile | Ser | Pro | Ser | Asp | Asn | Ala | Val | Val | Leu | Thr | Asn | Leu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Val | Ser | Ser | Val | Tyr | Glu | Gln |
| | | | | 65 | | | | | 70 | | | | | 75 |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | Gly | Leu | Asp |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala | Asn | Ser | Phe |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr | Gly | Tyr | Arg |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro | Arg | Glu | Asp |

| | | |
|---|-----|-----|
| 125 | 130 | 135 |
| Arg Val Pro His Ser Arg Asn Ser Ile Thr Leu Thr Asn Leu Thr | | |
| 140 | 145 | 150 |
| Pro Gly Thr Glu Tyr Val Val Ser Ile Val Ala Leu Asn Gly Arg | | |
| 155 | 160 | 165 |
| Glu Glu Ser Pro Leu Leu Ile Gly Gln Gln Ser Thr Val Ser Asp | | |
| 170 | 175 | 180 |
| Val Pro Arg Asp Leu Glu Val Val Ala Ala Thr Pro Thr Ser Leu | | |
| 185 | 190 | 195 |
| Leu Ile Ser Trp Asp Ala Pro Ala Val Thr Val Arg Tyr Tyr Arg | | |
| 200 | 205 | 210 |
| Ile Thr Tyr Gly Glu Thr Gly Gly Asn Ser Pro Val Gln Glu Phe | | |
| 215 | 220 | 225 |
| Thr Val Pro Gly Ser Lys Ser Thr Ala Thr Ile Ser Gly Leu Lys | | |
| 230 | 235 | 240 |
| Pro Gly Val Asp Tyr Thr Ile Thr Val Tyr Ala Val Thr Gly Arg | | |
| 245 | 250 | 255 |
| Gly Asp Ser Pro Ala Ser Ser Lys Pro Ile Ser Ile Asn Tyr Arg | | |
| 260 | 265 | 270 |
| Thr Glu Ile Asp Lys Pro Ser Asp Glu Leu Pro Gln Leu Val Thr | | |
| 275 | 280 | 285 |
| Leu Pro His Pro Asn Leu His Gly Pro Glu Ile Leu Asp Val Pro | | |
| 290 | 295 | 300 |
| Ser Thr | | |

<210> 15

<211> 367

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CHV-89

<400> 15

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Asp | Leu | Arg | Phe | Thr | Asn | Ile | Gly | Pro | Asp | Thr | Met | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Val | Thr | Trp | Ala | Pro | Pro | Pro | Ser | Ile | Asp | Leu | Thr | Asn | Phe | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Arg | Tyr | Ser | Pro | Val | Lys | Asn | Glu | Glu | Asp | Val | Ala | Glu | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Ser | Ile | Ser | Pro | Ser | Asp | Asn | Ala | Val | Val | Leu | Thr | Asn | Leu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Val | Ser | Ser | Val | Tyr | Glu | Gln |
| | | | | 65 | | | | | 70 | | | | | 75 |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | Gly | Leu | Asp |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala | Asn | Ser | Phe |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr | Gly | Tyr | Arg |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro | Arg | Glu | Asp |

| | | |
|---|-----|-----|
| 125 | 130 | 135 |
| Arg Val Pro His Ser Arg Asn Ser Ile Thr Leu Thr Asn Leu Thr | | |
| 140 | 145 | 150 |
| Pro Gly Thr Glu Tyr Val Val Ser Ile Val Ala Leu Asn Gly Arg | | |
| 155 | 160 | 165 |
| Glu Glu Ser Pro Leu Leu Ile Gly Gln Gln Ser Thr Val Ser Asp | | |
| 170 | 175 | 180 |
| Val Pro Arg Asp Leu Glu Val Val Ala Ala Thr Pro Thr Ser Leu | | |
| 185 | 190 | 195 |
| Leu Ile Ser Trp Asp Ala Pro Ala Val Thr Val Arg Tyr Tyr Arg | | |
| 200 | 205 | 210 |
| Ile Thr Tyr Gly Glu Thr Gly Gly Asn Ser Pro Val Gln Glu Phe | | |
| 215 | 220 | 225 |
| Thr Val Pro Gly Ser Lys Ser Thr Ala Thr Ile Ser Gly Leu Lys | | |
| 230 | 235 | 240 |
| Pro Gly Val Asp Tyr Thr Ile Thr Val Tyr Ala Val Thr Gly Arg | | |
| 245 | 250 | 255 |
| Gly Asp Ser Pro Ala Ser Ser Lys Pro Ile Ser Ile Asn Tyr Arg | | |
| 260 | 265 | 270 |
| Thr Glu Ile Asp Lys Pro Ser Met Asn Val Ser Pro Pro Arg Arg | | |
| 275 | 280 | 285 |
| Ala Arg Val Thr Asp Ala Thr Glu Thr Thr Ile Thr Ile Ser Trp | | |
| 290 | 295 | 300 |
| Arg Thr Lys Thr Glu Thr Ile Thr Gly Phe Gln Val Asp Ala Val | | |
| 305 | 310 | 315 |
| Pro Ala Asn Gly Gln Thr Pro Ile Gln Arg Thr Ile Lys Pro Asp | | |

| | | |
|---|-----|-----|
| 320 | 325 | 330 |
| Val Arg Ser Tyr Thr Ile Thr Gly Leu Gln Pro Gly Thr Asp Tyr | | |
| 335 | 340 | 345 |
| Lys Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro | | |
| 350 | 355 | 360 |
| Val Val Ile Asp Ala Ser Thr | | |
| 365 | | |

<210> 16

<211> 368

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CHV-90

<400> 16

| | | |
|---|----|----|
| Pro Thr Asp Leu Arg Phe Thr Asn Ile Gly Pro Asp Thr Met Arg | | |
| 1 | 5 | 10 |
| Val Thr Trp Ala Pro Pro Pro Ser Ile Asp Leu Thr Asn Phe Leu | | |
| 20 | 25 | 30 |
| Val Arg Tyr Ser Pro Val Lys Asn Glu Glu Asp Val Ala Glu Leu | | |
| 35 | 40 | 45 |
| Ser Ile Ser Pro Ser Asp Asn Ala Val Val Leu Thr Asn Leu Leu | | |
| 50 | 55 | 60 |

| | | | |
|---|-----|-----|-----|
| Pro Gly Thr Glu Tyr Val Val Ser Val Ser Ser Val Tyr Glu Gln | | | |
| | 65 | 70 | 75 |
| His Glu Ser Thr Pro Leu Arg Gly Arg Gln Lys Thr Gly Leu Asp | | | |
| | 80 | 85 | 90 |
| Ser Pro Thr Gly Ile Asp Phe Ser Asp Ile Thr Ala Asn Ser Phe | | | |
| | 95 | 100 | 105 |
| Thr Val His Trp Ile Ala Pro Arg Ala Thr Ile Thr Gly Tyr Arg | | | |
| | 110 | 115 | 120 |
| Ile Arg His His Pro Glu His Phe Ser Gly Arg Pro Arg Glu Asp | | | |
| | 125 | 130 | 135 |
| Arg Val Pro His Ser Arg Asn Ser Ile Thr Leu Thr Asn Leu Thr | | | |
| | 140 | 145 | 150 |
| Pro Gly Thr Glu Tyr Val Val Ser Ile Val Ala Leu Asn Gly Arg | | | |
| | 155 | 160 | 165 |
| Glu Glu Ser Pro Leu Leu Ile Gly Gln Gln Ser Thr Val Ser Asp | | | |
| | 170 | 175 | 180 |
| Val Pro Arg Asp Leu Glu Val Val Ala Ala Thr Pro Thr Ser Leu | | | |
| | 185 | 190 | 195 |
| Leu Ile Ser Trp Asp Ala Pro Ala Val Thr Val Arg Tyr Tyr Arg | | | |
| | 200 | 205 | 210 |
| Ile Thr Tyr Gly Glu Thr Gly Gly Asn Ser Pro Val Gln Glu Phe | | | |
| | 215 | 220 | 225 |
| Thr Val Pro Gly Ser Lys Ser Thr Ala Thr Ile Ser Gly Leu Lys | | | |
| | 230 | 235 | 240 |
| Pro Gly Val Asp Tyr Thr Ile Thr Val Tyr Ala Val Thr Gly Arg | | | |
| | 245 | 250 | 255 |

| | | |
|---|-----|-----|
| Gly Asp Ser Pro Ala Ser Ser Lys Pro Ile Ser Ile Asn Tyr Arg | | |
| 260 | 265 | 270 |
| Thr Glu Ile Asp Lys Pro Ser Met Ala Ile Asp Ala Pro Ser Asn | | |
| 275 | 280 | 285 |
| Leu Arg Phe Leu Ala Thr Thr Pro Asn Ser Leu Leu Val Ser Trp | | |
| 290 | 295 | 300 |
| Gln Pro Pro Arg Ala Arg Ile Thr Gly Tyr Ile Ile Lys Tyr Glu | | |
| 305 | 310 | 315 |
| Lys Pro Gly Ser Pro Pro Arg Glu Val Val Pro Arg Pro Arg Pro | | |
| 320 | 325 | 330 |
| Gly Val Thr Glu Ala Thr Ile Thr Gly Leu Glu Pro Gly Thr Glu | | |
| 335 | 340 | 345 |
| Tyr Thr Ile Tyr Val Ile Ala Leu Lys Asn Asn Gln Lys Ser Glu | | |
| 350 | 355 | 360 |
| Pro Leu Ile Gly Arg Lys Lys Thr | | |
| 365 | | |

<210> 17

<211> 370

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CHV-92

<400> 17

| | | | |
|---|-----|-----|-----|
| Pro Thr Asp Leu Arg Phe Thr Asn Ile Gly Pro Asp Thr Met Arg | | | |
| 1 | 5 | 10 | 15 |
| Val Thr Trp Ala Pro Pro Pro Ser Ile Asp Leu Thr Asn Phe Leu | | | |
| | 20 | 25 | 30 |
| Val Arg Tyr Ser Pro Val Lys Asn Glu Glu Asp Val Ala Glu Leu | | | |
| | 35 | 40 | 45 |
| Ser Ile Ser Pro Ser Asp Asn Ala Val Val Leu Thr Asn Leu Leu | | | |
| | 50 | 55 | 60 |
| Pro Gly Thr Glu Tyr Val Val Ser Val Ser Ser Val Tyr Glu Gln | | | |
| | 65 | 70 | 75 |
| His Glu Ser Thr Pro Leu Arg Gly Arg Gln Lys Thr Gly Leu Asp | | | |
| | 80 | 85 | 90 |
| Ser Pro Thr Gly Ile Asp Phe Ser Asp Ile Thr Ala Asn Ser Phe | | | |
| | 95 | 100 | 105 |
| Thr Val His Trp Ile Ala Pro Arg Ala Thr Ile Thr Gly Tyr Arg | | | |
| | 110 | 115 | 120 |
| Ile Arg His His Pro Glu His Phe Ser Gly Arg Pro Arg Glu Asp | | | |
| | 125 | 130 | 135 |
| Arg Val Pro His Ser Arg Asn Ser Ile Thr Leu Thr Asn Leu Thr | | | |
| | 140 | 145 | 150 |
| Pro Gly Thr Glu Tyr Val Val Ser Ile Val Ala Leu Asn Gly Arg | | | |
| | 155 | 160 | 165 |
| Glu Glu Ser Pro Leu Leu Ile Gly Gln Gln Ser Thr Val Ser Asp | | | |
| | 170 | 175 | 180 |
| Val Pro Arg Asp Leu Glu Val Val Ala Ala Thr Pro Thr Ser Leu | | | |

| | | |
|---|-----|-----|
| 185 | 190 | 195 |
| Leu Ile Ser Trp Asp Ala Pro Ala Val Thr Val Arg Tyr Tyr Arg | | |
| 200 | 205 | 210 |
| Ile Thr Tyr Gly Glu Thr Gly Gly Asn Ser Pro Val Gln Glu Phe | | |
| 215 | 220 | 225 |
| Thr Val Pro Gly Ser Lys Ser Thr Ala Thr Ile Ser Gly Leu Lys | | |
| 230 | 235 | 240 |
| Pro Gly Val Asp Tyr Thr Ile Thr Val Tyr Ala Val Thr Gly Arg | | |
| 245 | 250 | 255 |
| Gly Asp Ser Pro Ala Ser Ser Lys Pro Ile Ser Ile Asn Tyr Arg | | |
| 260 | 265 | 270 |
| Thr Glu Ile Asp Lys Pro Ser Met Ala Ile Pro Ala Pro Thr Asp | | |
| 275 | 280 | 285 |
| Leu Lys Phe Thr Gln Val Thr Pro Thr Ser Leu Ser Ala Gln Trp | | |
| 290 | 295 | 300 |
| Thr Pro Pro Asn Val Gln Leu Thr Gly Tyr Arg Val Arg Val Thr | | |
| 305 | 310 | 315 |
| Pro Lys Glu Lys Thr Gly Pro Met Lys Glu Ile Asn Leu Ala Pro | | |
| 320 | 325 | 330 |
| Asp Ser Ser Ser Val Val Val Ser Gly Leu Met Val Ala Thr Lys | | |
| 335 | 340 | 345 |
| Tyr Glu Val Ser Val Tyr Ala Leu Lys Asp Thr Leu Thr Ser Arg | | |
| 350 | 355 | 360 |
| Pro Ala Gln Gly Val Val Thr Thr Leu Glu | | |
| 365 | 370 | |

<210> 18

<211> 457

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CHV-179

<400> 18

Pro Thr Asp Leu Arg Phe Thr Asn Ile Gly Pro Asp Thr Met Arg

1 5 10 15

Val Thr Trp Ala Pro Pro Pro Ser Ile Asp Leu Thr Asn Phe Leu

20 25 30

Val Arg Tyr Ser Pro Val Lys Asn Glu Glu Asp Val Ala Glu Leu

35 40 45

Ser Ile Ser Pro Ser Asp Asn Ala Val Val Leu Thr Asn Leu Leu

50 55 60

Pro Gly Thr Glu Tyr Val Val Ser Val Ser Ser Val Tyr Glu Gln

65 70 75

His Glu Ser Thr Pro Leu Arg Gly Arg Gln Lys Thr Gly Leu Asp

80 85 90

Ser Pro Thr Gly Ile Asp Phe Ser Asp Ile Thr Ala Asn Ser Phe

95 100 105

Thr Val His Trp Ile Ala Pro Arg Ala Thr Ile Thr Gly Tyr Arg

110 115 120

| | | | |
|---|-----|-----|-----|
| Ile Arg His His Pro Glu His Phe Ser Gly Arg Pro Arg Glu Asp | | | |
| | 125 | 130 | 135 |
| Arg Val Pro His Ser Arg Asn Ser Ile Thr Leu Thr Asn Leu Thr | | | |
| | 140 | 145 | 150 |
| Pro Gly Thr Glu Tyr Val Val Ser Ile Val Ala Leu Asn Gly Arg | | | |
| | 155 | 160 | 165 |
| Glu Glu Ser Pro Leu Leu Ile Gly Gln Gln Ser Thr Val Ser Asp | | | |
| | 170 | 175 | 180 |
| Val Pro Arg Asp Leu Glu Val Val Ala Ala Thr Pro Thr Ser Leu | | | |
| | 185 | 190 | 195 |
| Leu Ile Ser Trp Asp Ala Pro Ala Val Thr Val Arg Tyr Tyr Arg | | | |
| | 200 | 205 | 210 |
| Ile Thr Tyr Gly Glu Thr Gly Gly Asn Ser Pro Val Gln Glu Phe | | | |
| | 215 | 220 | 225 |
| Thr Val Pro Gly Ser Lys Ser Thr Ala Thr Ile Ser Gly Leu Lys | | | |
| | 230 | 235 | 240 |
| Pro Gly Val Asp Tyr Thr Ile Thr Val Tyr Ala Val Thr Gly Arg | | | |
| | 245 | 250 | 255 |
| Gly Asp Ser Pro Ala Ser Ser Lys Pro Ile Ser Ile Asn Tyr Arg | | | |
| | 260 | 265 | 270 |
| Thr Glu Ile Asp Lys Pro Ser Met Asn Val Ser Pro Pro Arg Arg | | | |
| | 275 | 280 | 285 |
| Ala Arg Val Thr Asp Ala Thr Glu Thr Thr Ile Thr Ile Ser Trp | | | |
| | 290 | 295 | 300 |
| Arg Thr Lys Thr Glu Thr Ile Thr Gly Phe Gln Val Asp Ala Val | | | |
| | 305 | 310 | 315 |

| | | |
|---|-----|-----|
| Pro Ala Asn Gly Gln Thr Pro Ile Gln Arg Thr Ile Lys Pro Asp | | |
| 320 | 325 | 330 |
| Val Arg Ser Tyr Thr Ile Thr Gly Leu Gln Pro Gly Thr Asp Tyr | | |
| 335 | 340 | 345 |
| Lys Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro | | |
| 350 | 355 | 360 |
| Val Val Ile Asp Ala Ser Thr Ala Ile Asp Ala Pro Ser Asn Leu | | |
| 365 | 370 | 375 |
| Arg Phe Leu Ala Thr Thr Pro Asn Ser Leu Leu Val Ser Trp Gln | | |
| 380 | 385 | 390 |
| Pro Pro Arg Ala Arg Ile Thr Gly Tyr Ile Ile Lys Tyr Glu Lys | | |
| 395 | 400 | 405 |
| Pro Gly Ser Pro Pro Arg Glu Val Val Pro Arg Pro Arg Pro Gly | | |
| 410 | 415 | 420 |
| Val Thr Glu Ala Thr Ile Thr Gly Leu Glu Pro Gly Thr Glu Tyr | | |
| 425 | 430 | 435 |
| Thr Ile Tyr Val Ile Ala Leu Lys Asn Asn Gln Lys Ser Glu Pro | | |
| 440 | 445 | 450 |
| Leu Ile Gly Arg Lys Lys Thr | | |
| 455 | | |

<210> 19

<211> 459

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CHV-181

<400> 19

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Asp | Leu | Arg | Phe | Thr | Asn | Ile | Gly | Pro | Asp | Thr | Met | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Val | Thr | Trp | Ala | Pro | Pro | Pro | Ser | Ile | Asp | Leu | Thr | Asn | Phe | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Arg | Tyr | Ser | Pro | Val | Lys | Asn | Glu | Glu | Asp | Val | Ala | Glu | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Ser | Ile | Ser | Pro | Ser | Asp | Asn | Ala | Val | Val | Leu | Thr | Asn | Leu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Val | Ser | Ser | Val | Tyr | Glu | Gln |
| | | | | 65 | | | | | 70 | | | | | 75 |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | Gly | Leu | Asp |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala | Asn | Ser | Phe |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr | Gly | Tyr | Arg |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro | Arg | Glu | Asp |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Arg | Val | Pro | His | Ser | Arg | Asn | Ser | Ile | Thr | Leu | Thr | Asn | Leu | Thr |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Ile | Val | Ala | Leu | Asn | Gly | Arg |

| | | |
|---|-----|-----|
| 155 | 160 | 165 |
| Glu Glu Ser Pro Leu Leu Ile Gly Gln Gln Ser Thr Val Ser Asp | | |
| 170 | 175 | 180 |
| Val Pro Arg Asp Leu Glu Val Val Ala Ala Thr Pro Thr Ser Leu | | |
| 185 | 190 | 195 |
| Leu Ile Ser Trp Asp Ala Pro Ala Val Thr Val Arg Tyr Tyr Arg | | |
| 200 | 205 | 210 |
| Ile Thr Tyr Gly Glu Thr Gly Gly Asn Ser Pro Val Gln Glu Phe | | |
| 215 | 220 | 225 |
| Thr Val Pro Gly Ser Lys Ser Thr Ala Thr Ile Ser Gly Leu Lys | | |
| 230 | 235 | 240 |
| Pro Gly Val Asp Tyr Thr Ile Thr Val Tyr Ala Val Thr Gly Arg | | |
| 245 | 250 | 255 |
| Gly Asp Ser Pro Ala Ser Ser Lys Pro Ile Ser Ile Asn Tyr Arg | | |
| 260 | 265 | 270 |
| Thr Glu Ile Asp Lys Pro Ser Met Ala Ile Pro Ala Pro Thr Asp | | |
| 275 | 280 | 285 |
| Leu Lys Phe Thr Gln Val Thr Pro Thr Ser Leu Ser Ala Gln Trp | | |
| 290 | 295 | 300 |
| Thr Pro Pro Asn Val Gln Leu Thr Gly Tyr Arg Val Arg Val Thr | | |
| 305 | 310 | 315 |
| Pro Lys Glu Lys Thr Gly Pro Met Lys Glu Ile Asn Leu Ala Pro | | |
| 320 | 325 | 330 |
| Asp Ser Ser Ser Val Val Val Ser Gly Leu Met Val Ala Thr Lys | | |
| 335 | 340 | 345 |
| Tyr Glu Val Ser Val Tyr Ala Leu Lys Asp Thr Leu Thr Ser Arg | | |

| | | |
|---|-----|-----|
| 350 | 355 | 360 |
| Pro Ala Gln Gly Val Val Thr Thr Leu Glu Asn Val Ser Pro Pro | | |
| 365 | 370 | 375 |
| Arg Arg Ala Arg Val Thr Asp Ala Thr Glu Thr Thr Ile Thr Ile | | |
| 380 | 385 | 390 |
| Ser Trp Arg Thr Lys Thr Glu Thr Ile Thr Gly Phe Gln Val Asp | | |
| 395 | 400 | 405 |
| Ala Val Pro Ala Asn Gly Gln Thr Pro Ile Gln Arg Thr Ile Lys | | |
| 410 | 415 | 420 |
| Pro Asp Val Arg Ser Tyr Thr Ile Thr Gly Leu Gln Pro Gly Thr | | |
| 425 | 430 | 435 |
| Asp Tyr Lys Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser | | |
| 440 | 445 | 450 |
| Ser Pro Val Val Ile Asp Ala Ser Thr | | |
| 455 | | |

<210> 20

<211> 276

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named H-275-Cys

<400> 20

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ala | Ser | Ala | Ile | Pro | Ala | Pro | Thr | Asp | Leu | Lys | Phe | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Gln | Val | Thr | Pro | Thr | Ser | Leu | Ser | Ala | Gln | Trp | Thr | Pro | Pro | Asn |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Gln | Leu | Thr | Gly | Tyr | Arg | Val | Arg | Val | Thr | Pro | Lys | Glu | Lys |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Thr | Gly | Pro | Met | Lys | Glu | Ile | Asn | Leu | Ala | Pro | Asp | Ser | Ser | Ser |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Val | Val | Val | Ser | Gly | Leu | Met | Val | Ala | Thr | Lys | Tyr | Glu | Val | Ser |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Val | Tyr | Ala | Leu | Lys | Asp | Thr | Leu | Thr | Ser | Arg | Pro | Ala | Gln | Gly |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Val | Val | Thr | Thr | Leu | Glu | Asn | Val | Ser | Pro | Pro | Arg | Arg | Ala | Arg |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Val | Thr | Asp | Ala | Thr | Glu | Thr | Thr | Ile | Thr | Ile | Ser | Trp | Arg | Thr |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Lys | Thr | Glu | Thr | Ile | Thr | Gly | Phe | Gln | Val | Asp | Ala | Val | Pro | Ala |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Asn | Gly | Gln | Thr | Pro | Ile | Gln | Arg | Thr | Ile | Lys | Pro | Asp | Val | Arg |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Ser | Tyr | Thr | Ile | Thr | Gly | Leu | Gln | Pro | Gly | Thr | Asp | Tyr | Lys | Ile |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Tyr | Leu | Tyr | Thr | Leu | Asn | Asp | Asn | Ala | Arg | Ser | Ser | Pro | Val | Val |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Ile | Asp | Ala | Ser | Thr | Ala | Ile | Asp | Ala | Pro | Ser | Asn | Leu | Arg | Phe |
| | | | | 185 | | | | | 190 | | | | | 195 |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ala | Thr | Thr | Pro | Asn | Ser | Leu | Leu | Val | Ser | Trp | Gln | Pro | Pro |
| | | | | 200 | | | | | 205 | | | | 210 | |
| Arg | Ala | Arg | Ile | Thr | Gly | Tyr | Ile | Ile | Lys | Tyr | Glu | Lys | Pro | Gly |
| | | | | 215 | | | | | 220 | | | | 225 | |
| Ser | Pro | Pro | Arg | Glu | Val | Val | Pro | Arg | Pro | Arg | Pro | Gly | Val | Thr |
| | | | | 230 | | | | | 235 | | | | 240 | |
| Glu | Ala | Thr | Ile | Thr | Gly | Leu | Glu | Pro | Gly | Thr | Glu | Tyr | Thr | Ile |
| | | | | 245 | | | | | 250 | | | | 255 | |
| Tyr | Val | Ile | Ala | Leu | Lys | Asn | Asn | Gln | Lys | Ser | Glu | Pro | Leu | Ile |
| | | | | 260 | | | | | 265 | | | | 270 | |
| Gly | Arg | Lys | Lys | Thr | Cys | | | | | | | | | |
| | | | | 275 | | | | | | | | | | |

<210> 21

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> primer 12S

<400> 21

aaaccatggc agctagcgct attcctgcac caactgac

38

<210> 22

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> primer 14A

<400> 22

aaaggatccc taactagtct ttttccttcc aatcag

36

<210> 23

<211> 40

<212> DNA

<213> Artificial Sequence

<220>

<223> primer Cys-A

<400> 23

aaaagcggcc gctagcgcaa gccatgggtct gtttcctgtg

40

<210> 24

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> primer Cys-S

<400> 24

aaaagcggcc gcactagtgc atagggatcc ggctgagcaa c 41

<210> 25

<211> 658

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CH-296Na

<400> 25

Met Pro Thr Asp Leu Arg Phe Thr Asn Ile Gly Pro Asp Thr Met Arg

1 5 10 15

Val Thr Trp Ala Pro Pro Pro Ser Ile Asp Leu Thr Asn Phe Leu Val

20 25 30

Arg Tyr Ser Pro Val Lys Asn Glu Glu Asp Val Ala Glu Leu Ser Ile

35 40 45

Ser Pro Ser Asp Asn Ala Val Val Leu Thr Asn Leu Leu Pro Gly Thr

| | | |
|---|-----|-----|
| 50 | 55 | 60 |
| Glu Tyr Val Val Ser Val Ser Ser Val Tyr Glu Gln His Glu Ser Thr | | |
| 65 | 70 | 75 |
| Pro Leu Arg Gly Arg Gln Lys Thr Gly Leu Asp Ser Pro Thr Gly Ile | | |
| | 85 | 90 |
| Asp Phe Ser Asp Ile Thr Ala Asn Ser Phe Thr Val His Trp Ile Ala | | |
| 100 | 105 | 110 |
| Pro Arg Ala Thr Ile Thr Gly Tyr Arg Ile Arg His His Pro Glu His | | |
| 115 | 120 | 125 |
| Phe Ser Gly Arg Pro Arg Glu Asp Arg Val Pro His Ser Arg Asn Ser | | |
| 130 | 135 | 140 |
| Ile Thr Leu Thr Asn Leu Thr Pro Gly Thr Glu Tyr Val Val Ser Ile | | |
| 145 | 150 | 155 |
| Val Ala Leu Asn Gly Arg Glu Glu Ser Pro Leu Leu Ile Gly Gln Gln | | |
| | 165 | 170 |
| Ser Thr Val Ser Asp Val Pro Arg Asp Leu Glu Val Val Ala Ala Thr | | |
| 180 | 185 | 190 |
| Pro Thr Ser Leu Leu Ile Ser Trp Asp Ala Pro Ala Val Thr Val Arg | | |
| 195 | 200 | 205 |
| Tyr Tyr Arg Ile Thr Tyr Gly Glu Thr Gly Gly Asn Ser Pro Val Gln | | |
| 210 | 215 | 220 |
| Glu Phe Thr Val Pro Gly Ser Lys Ser Thr Ala Thr Ile Ser Gly Leu | | |
| 225 | 230 | 235 |
| Lys Pro Gly Val Asp Tyr Thr Ile Thr Val Tyr Ala Val Thr Gly Arg | | |
| | 245 | 250 |
| Gly Asp Ser Pro Ala Ser Ser Lys Pro Ile Ser Ile Asn Tyr Arg Thr | | |

| | | |
|---|-----|-----|
| 260 | 265 | 270 |
| Glu Ile Asp Lys Pro Ser Gln Met Gln Val Thr Asp Val Gln Asp Asn | | |
| 275 | 280 | 285 |
| Ser Ile Ser Val Lys Trp Leu Pro Ser Ser Ser Pro Val Thr Gly Tyr | | |
| 290 | 295 | 300 |
| Arg Val Thr Thr Thr Pro Lys Asn Gly Pro Gly Pro Thr Lys Thr Lys | | |
| 305 | 310 | 315 |
| Thr Ala Gly Pro Asp Gln Thr Glu Met Thr Ile Glu Gly Leu Gln Pro | | |
| 325 | 330 | 335 |
| Thr Val Glu Tyr Val Val Ser Val Tyr Ala Gln Asn Pro Ser Gly Glu | | |
| 340 | 345 | 350 |
| Ser Gln Pro Leu Val Gln Thr Ala Val Thr Ala Ile Pro Ala Pro Thr | | |
| 355 | 360 | 365 |
| Asp Leu Lys Phe Thr Gln Val Thr Pro Thr Ser Leu Ser Ala Gln Trp | | |
| 370 | 375 | 380 |
| Thr Pro Pro Asn Val Gln Leu Thr Gly Tyr Arg Val Arg Val Thr Pro | | |
| 385 | 390 | 395 |
| Lys Glu Lys Thr Gly Pro Met Lys Glu Ile Asn Leu Ala Pro Asp Ser | | |
| 405 | 410 | 415 |
| Ser Ser Val Val Val Ser Gly Leu Met Val Ala Thr Lys Tyr Glu Val | | |
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| Ser Val Tyr Ala Leu Lys Asp Thr Leu Thr Ser Arg Pro Ala Gln Gly | | |
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| Val Val Thr Thr Leu Glu Asn Val Ser Pro Pro Arg Arg Ala Arg Val | | |
| 450 | 455 | 460 |
| Thr Asp Ala Thr Glu Thr Thr Ile Thr Ile Ser Trp Arg Thr Lys Thr | | |

| | | | |
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| 465 | 470 | 475 | 480 |
| Glu Thr Ile Thr Gly Phe Gln Val Asp Ala Val Pro Ala Asn Gly Gln | | | |
| | 485 | 490 | 495 |
| Thr Pro Ile Gln Arg Thr Ile Lys Pro Asp Val Arg Ser Tyr Thr Ile | | | |
| | 500 | 505 | 510 |
| Thr Gly Leu Gln Pro Gly Thr Asp Tyr Lys Ile Tyr Leu Tyr Thr Leu | | | |
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| Asn Asp Asn Ala Arg Ser Ser Pro Val Val Ile Asp Ala Ser Thr Ala | | | |
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| Ile Asp Ala Pro Ser Asn Leu Arg Phe Leu Ala Thr Thr Pro Asn Ser | | | |
| 545 | 550 | 555 | 560 |
| Leu Leu Val Ser Trp Gln Pro Pro Arg Ala Arg Ile Thr Gly Tyr Ile | | | |
| | 565 | 570 | 575 |
| Ile Lys Tyr Glu Lys Pro Gly Ser Pro Pro Arg Glu Val Val Pro Arg | | | |
| | 580 | 585 | 590 |
| Pro Arg Pro Gly Val Thr Glu Ala Thr Ile Thr Gly Leu Glu Pro Gly | | | |
| | 595 | 600 | 605 |
| Thr Glu Tyr Thr Ile Tyr Val Ile Ala Leu Lys Asn Asn Gln Lys Ser | | | |
| | 610 | 615 | 620 |
| Glu Pro Leu Ile Gly Arg Lys Lys Thr Asp Glu Leu Pro Gln Leu Val | | | |
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